



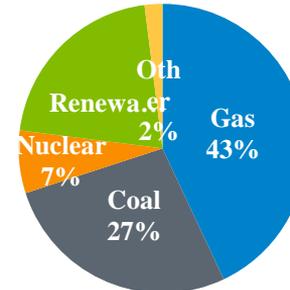
IURC Winter  
Preparedness  
Policy Session  
Winter 2022-23

# MISO is an independent, not-for-profit Regional Transmission Organization serving 15 U.S. states and one Canadian province



Who we serve	
Members	256
Market Participants	513
Customers Served	42 Million
Value Provided to Members	\$3.4 Billion

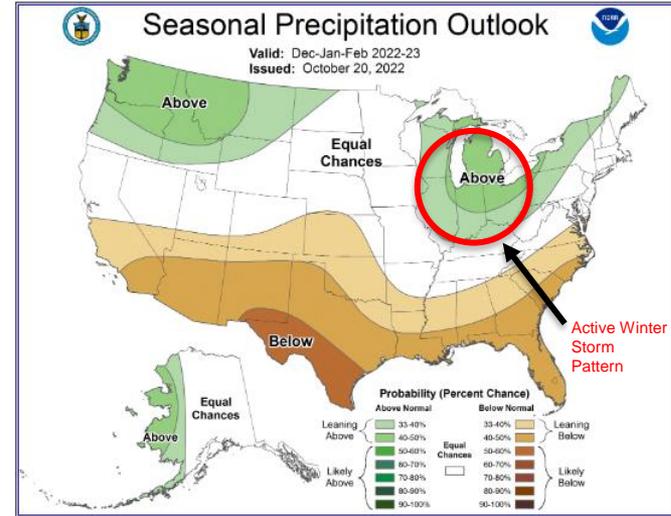
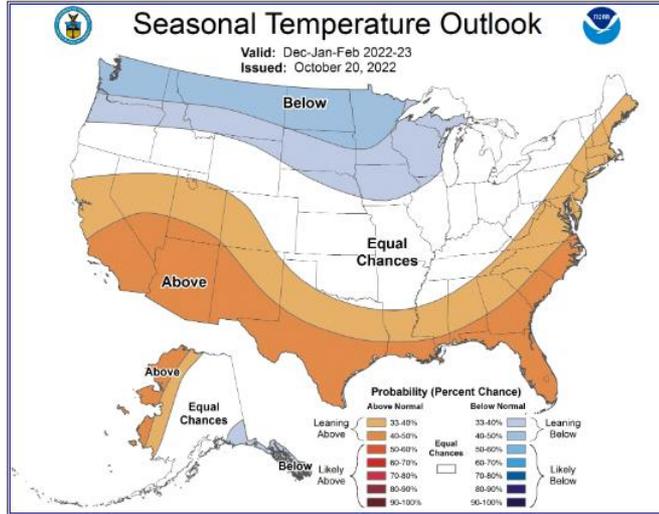
MISO region	
High Voltage Transmission	72,000 miles
Generating Units	6,852
Generating Capacity	205,177 MW
Peak System Demand	130,917 MW



**Generation Capacity**

As of August 2022

# Winter 2022-23 weather projections



## This winter, expecting similar risks to last winter

- Below normal/normal temperatures in the Classic Region and Normal/above normal temperatures in the South Region
- Active winter storm pattern
- Wind output is increasing on average. Icing and dispatch down risks to watch
- Solar could increase net load ramping needs in winter. Expecting larger forecast errors and snow risks
- Dispatchable Generation and fuel availability are key risks to watch for winter

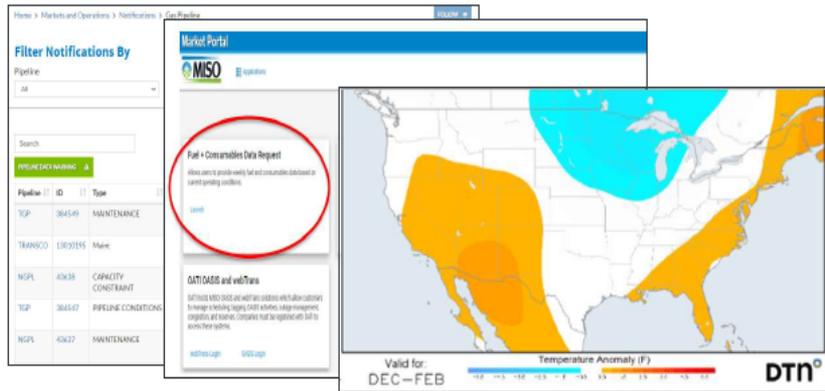
**How are we positioned to manage the risks?**

# Analytical assessments and additional data sources help measure uncertainty and pre-position the system for those risks

MISO uses its normal Multi-Day Forward Reliability Assessment and Commitment processes to pre-position commitments for extreme weather or other types of extreme events. Analytical assessments are performed to measure uncertainty and ensure adequate capacity for the footprint.

Additional sources of data are used to inform and help assess commitment decisions, such as:

- Gas pipeline bulletin boards
- Weather forecasts
- Weekly fuel & consumables data
- Annual winterization survey

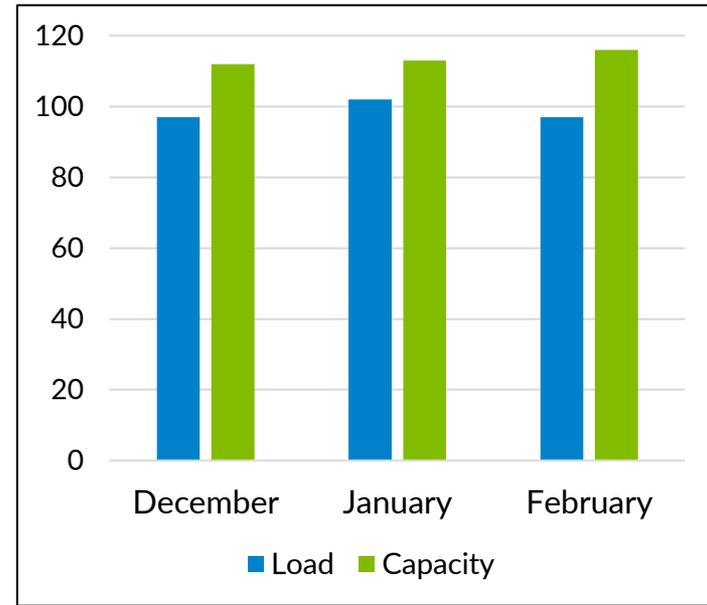


# Sufficient firm supply projected to cover seasonal peak load forecasts and typical generation outages

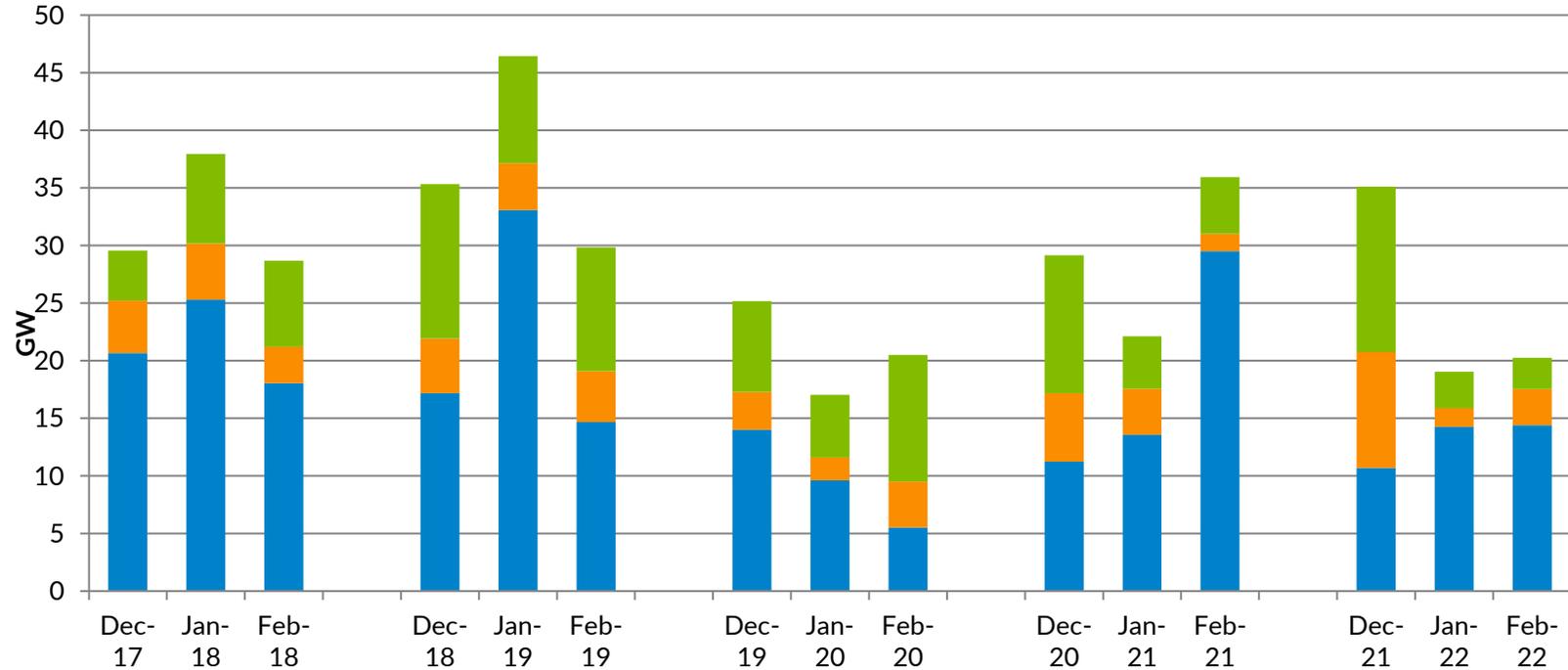
## MISO – System-wide

All-time Seasonal Peak Load 109 GW on January 6, 2017

MISO Base Winter 2022-2023 Forecast	
December Probable Peak Load Forecast	97 GW
December Probable Generation Capacity	112 GW
January Probable Peak Load Forecast	102 GW
January Probable Generation Capacity	113 GW
February Probable Peak Load Forecast	97 GW
February Probable Generation Capacity	116 GW



# Historical Generation Outages on Monthly Peak



- Forced Outages
- Maintenance Outages
- Planned Outages

	Forced Outages (GW)	Total Outages (GW)
Average of 15 monthly peaks	16.8	28.8
Maximum seasonal peak	33.1	46.4

# Two deterministic scenarios (typical and worst case) are evaluated to project potential supply

## Generation

### Probable Capacity

Removes an **average** volume of resource outages<sup>1</sup> (forced, planned, and maintenance)

### Low Generation Capacity (Worst Case Outage)

Removes a **worst-case** volume of resource outages<sup>1</sup> (forced, planned, and maintenance), typically because of non-normal weather conditions

## Load

### Probable Load Forecast

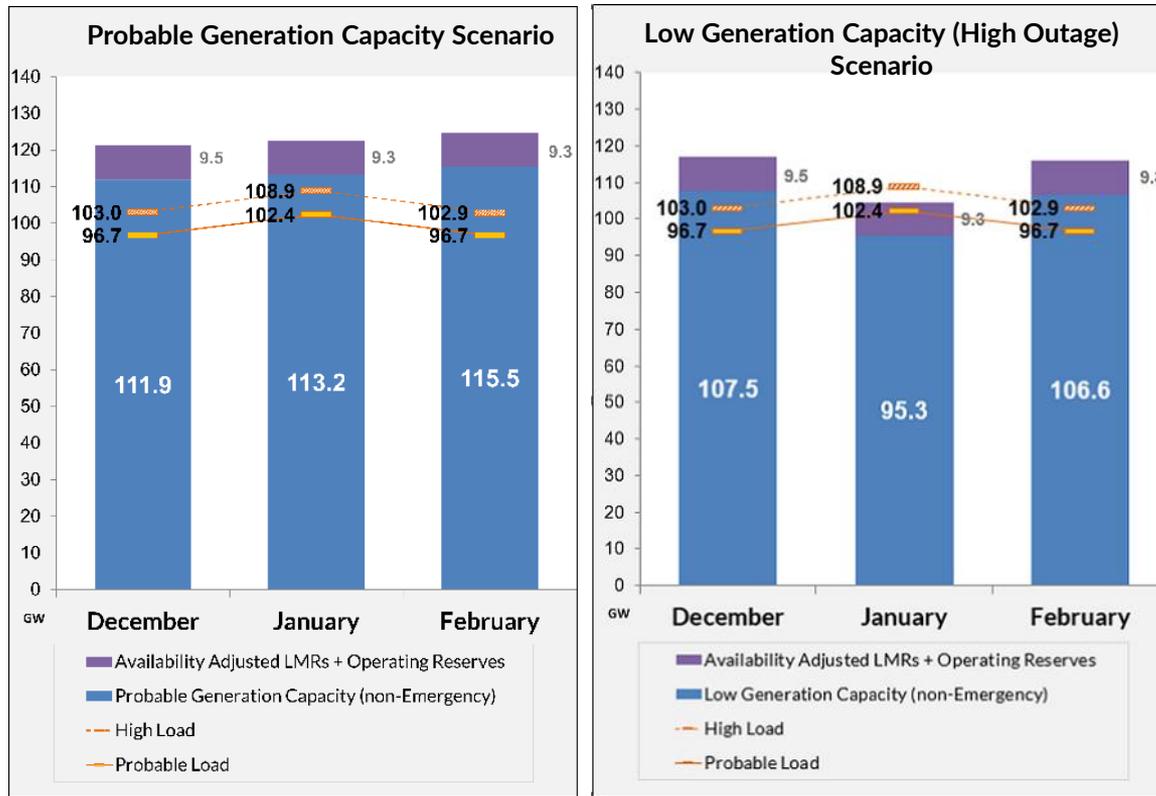
Base 50/50 forecast<sup>2</sup>, provided by Market Participants

### High Load Forecast

Higher 90/10 forecast<sup>3</sup>

# Winter 2022-2023 Resource Adequacy Projections

## MISO System-wide



# Generation Winterization Survey Results

- MISO appreciates stakeholder participation in the 4th Generation Winterization Survey
- MISO generation generally prepared for winter operations
- Record rate

Response rate as % of MW	Generator Winterization	Gas Fuel Specific Questions <sup>1</sup>
2022	96%	99%
2021	90%	91%
2020	71%	83%
2019	60%	72%



**MISO GENERATORS**

COMPLETE THE ANNUAL  
**GENERATOR WINTERIZATION SURVEY**

Survey closes September 27  
PLEASE LOG INTO YOUR PROFILE AND CLICK HERE.

The banner features a background image of industrial power plant equipment covered in snow. A circular logo with a white snowflake is overlaid on the image.

# Real-Time Market and Operations Display is available via the MISO website and Mobile App

Home > Markets and Operations > Real-Time and Market Data > Markets Displays

## Markets Displays

LMP Contour Map  
15-Apr-2022 - 10:20 EST

MINN.HUB 24.00

MICHIGAN.HUB 48.53

ExAnte LMP  
15-Apr-2022 - Interval 10:20

Name	LMP	...
ARKANSAS.HUB		
ILLINOIS.HUB		
INDIANA.HUB		
LOUISIANA.HUB		
MICHIGAN.HUB	48.52	1.42

MISO Mobile

## Grid Status

Demand @ 10:15:00EST **69,991 MW**  
 Actual Demand: 70,019 MW  
 Forecast Demand

Fuel  
 Coal: 20,734 MW  
 Nuclear: 17,865 MW  
 Other: 25,892 MW

Price **\$45.45** per MWh

## Real-Time Displays

Fuel Mix  
 15-Apr-2022 - Interval 10:15:00EST

Total Megawatts **64,404 MW**  
 Coal: 20,734 MW  
 Natural Gas: 17,865 MW



Additional  
questions?